

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

101215-66

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

09/868110

INTERNATIONAL APPLICATION NO.

PCT/EP00/10136

INTERNATIONAL FILING DATE

13 October 2000 (13.10/00)

PRIORITY DATE CLAIMED

15 October 1999 (15.10.99)

## TITLE OF INVENTION

Method for the Analysis of User Behavior in a Computer Network in Order to Optimize Web Presence

APPLICANT(S) FOR DO/EO/US

Joachim Schlafke

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☒ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ A copy of the International Search Report (PCT/ISA/210).
8. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

## Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☒ Certificate of Mailing by Express Mail
20. ☐ Other items or information:

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR) <b>09/868110</b>		INTERNATIONAL APPLICATION NO. <b>PCT/EP00/10136</b>		ATTORNEY'S DOCKET NUMBER <b>101215-66</b>	
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21. The following fees are submitted: <b>BASIC NATIONAL FEE ( 37 CFR 1.492 (a) (1) - (5) ) :</b>				<b>CALCULATIONS PTO USE ONLY</b>	
<input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... <b>\$1,000.00</b>					
<input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... <b>\$860.00</b>					
<input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... <b>\$710.00</b>					
<input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... <b>\$690.00</b>					
<input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) ..... <b>\$100.00</b>					
<b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b>				<b>\$860.00</b>	
Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).				<b>\$0.00</b>	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	15 - 20 =	0	x \$18.00	<b>\$0.00</b>	
Independent claims	2 - 3 =	0	x \$80.00	<b>\$0.00</b>	
Multiple Dependent Claims (check if applicable). <input type="checkbox"/>				<b>\$0.00</b>	
<b>TOTAL OF ABOVE CALCULATIONS =</b>				<b>\$860.00</b>	
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) (check if applicable). <input checked="" type="checkbox"/>				<b>\$430.00</b>	
<b>SUBTOTAL =</b>				<b>\$430.00</b>	
Processing fee of <b>\$130.00</b> for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).				<b>\$0.00</b>	
<b>TOTAL NATIONAL FEE =</b>				<b>\$430.00</b>	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). <input type="checkbox"/>				<b>\$0.00</b>	
<b>TOTAL FEES ENCLOSED =</b>				<b>\$430.00</b>	
				Amount to be refunded	\$
				charged	\$

☐ A check in the amount of \_\_\_\_\_ to cover the above fees is enclosed.


☒ Please charge my Deposit Account No. **14-1263** in the amount of **\$430.00** to cover the above fees.  
 A duplicate copy of this sheet is enclosed.

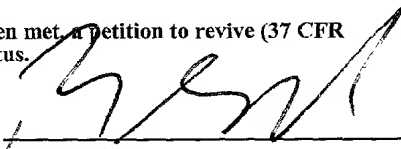
☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **14-1263** A duplicate copy of this sheet is enclosed.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

the correspondence address associated with Customer No. 27387

  
**27387**  
 PATENT TRADEMARK OFFICE

  
 SIGNATURE  
**Bruce S. Londa**  
 NAME  
**33,531**  
 REGISTRATION NUMBER  
**June 14, 2001**  
 DATE

## CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)

Applicant(s): Joachim Schlafke

Docket No.

101215-66

09/868110

TBA

Filing Date

Concurrently Herewith

Examiner

TBA

Group Art Unit

TBA

Invention: Method for the Analysis of User Behavior in a Computer Network in Order to Optimize Web Presence

I hereby certify that the following correspondence:

U.S. national stage application of PCT/EP00/10136

(Identify type of correspondence)

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under  
37 CFR 1.10 in an envelope addressed to: The Assistant Commissioner for Patents, Washington, D.C. 20231 on

June 14, 2001

(Date)

Kathleen D. Monical

(Typed or Printed Name of Person Mailing Correspondence)



(Signature of Person Mailing Correspondence)

EL 851060929 US

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Rec'd PCT/PTO 09 JAN 2002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Atty's Docket No. 101215-66

EXAMINER :  
GROUP ART UNIT :  
APPLICANT : Joachim Schlafke  
APPLN. NUMBER : 09/868,110  
FILED : June 14, 2001  
FOR : Procedure for the Professional Analysis of  
Visitor Behavior in Computer Networks and for the  
Optimization of Web Sites

SUPPLEMENTAL PRELIMINARY AMENDMENT

Hon. Assistant Commissioner of Patents  
Washington, D.C. 20231

Sir:

Prior to examination, please amend the application as  
follows:

IN THE SPECIFICATION

Page 1, after line 2, please insert --Background of the  
Invention--;

Page 2, after line 20, please insert --Summary of the  
Invention--;

Page3, after line 11, please insert --Brief Description of


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[illegible]

IN THE CLAIMS

REMARKS

Respectfully Submitted,

  
Bruce S. Londa

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Claims - Marked-up Copy

1. A method for analyzing user behavior in computer networks for optimizing the web presence, wherein

- the source language of the domain is optimized after the method is implemented,
- user activities are recorded and logged by at least one server computer,
- the activities recorded are debugged to remove interpretation errors,
- after the debugging, the data is analyzed and compared with data from an empirical database and
- the results of the comparison for optimizing are used in that, by feedback, the server computer is affected actively and, by these means, a closed-loop control circuit is realized.

2. The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the user activities are logged in a log file and/or stored in a second database.

3. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 or 2~~ claim 1, wherein

- parameters of the controlling and/or
- data concerning the structure of the HTML documents and/or
- the actual state analysis and/or
- the historical data and/or
- the trend analysis

are stored in the log file and/or the second database.

4. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 to 3~~ claim 1, wherein the method makes a universal interface available.

5. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 to 4~~ claim 1, wherein the logged user activities are saved over a period of several months

6. The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the empirical database contains information

- concerning all HTML documents which, provided with attributes, are listed in symbol tables, and/or
- concerning controlling parameters.

7. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 to 6~~ claim 1, wherein the attributes,

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assigned to the HTML documents, characterize the HTML documents as

- technical documents,
- documents for navigation,
- content-containing documents or
- advertising-containing documents.

8. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 to 7~~ claim 1, wherein the interpretation errors, which are caused by constructing the web site and/or by using

- proxy cache reserves and/or
  - local cache memories and/or
  - routers and/or
  - firewalls and/or
  - dynamically issued IP addresses,
- are corrected.

9. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 to 8~~ claim 1, wherein each inquiry at a dynamically generated page, including the generated contents, is logged.

10. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 to 9~~ claim 1, wherein each inquiry at a web site leads to an entry in the log file, in that a server is always informed of an inquiry by means of a CGI image.



11. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 to 10~~ claim 1, wherein interpretation errors are corrected with the help of symbol tables.

12. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 to 11~~ claim 1, wherein

- the automatic debugging of programming errors in the HTML documents and/or
- the automatic adaptation of HTML documents to the equipment-imposed prerequisites of the user and/or
- the automatic adaptation of the contents of the web site to user behavior and/or the requirements of the user

are a component of the optimization.

13. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 to 12~~ claim 1, wherein the optimization is accomplished

- by a comparison with the typical target group behavior and/or
- by methods of customer-related quality management.

14. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of ~~claims 1 to 13~~ claim 1, wherein the results of the analysis are presented according to the specification of individual parameters.

15. A method for optimizing the web presence in computer networks, wherein the user behavior is determined and analyzed, defective factors being eliminated and the web presence being optimized with the objective of increasing the commercial effectiveness of the web presence in such a manner that, from the corrected user activities and statements, acquired from an empirical database, a control value for realizing a closed-loop control circuit is formed, which has an effect on the lay-out of the web presence.

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## Claims - Clean Copy

1. A method for analyzing user behavior in computer networks for optimizing the web presence, wherein

- the source language of the domain is optimized after the method is implemented,
- user activities are recorded and logged by at least one server computer,
- the activities recorded are debugged to remove interpretation errors,
- after the debugging, the data is analyzed and compared with data from an empirical database and
- the results of the comparison for optimizing are used in that, by feedback, the server computer is affected actively and, by these means, a closed-loop control circuit is realized.

2. The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the user activities are logged in a log file and/or stored in a second database.

3.(amended) The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein

- parameters of the controlling and/or
- data concerning the structure of the HTML documents and/or
- the actual state analysis and/or
- the historical data and/or
- the trend analysis

are stored in the log file and/or the second database.

4. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the method makes a universal interface available.

5. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the logged user activities are saved over a period of several months

6. The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the empirical database contains information

- concerning all HTML documents which, provided with attributes, are listed in symbol tables, and/or
- concerning controlling parameters.

7. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the attributes, assigned to the HTML documents, characterize the HTML documents as

- technical documents,
- documents for navigation,
- content-containing documents or
- advertising-containing documents.

8. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the interpretation errors, which are caused by constructing the web site and/or by using

- proxy cache reserves and/or
  - local cache memories and/or
  - routers and/or
  - firewalls and/or
  - dynamically issued IP addresses,
- are corrected.

9. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein each inquiry at a dynamically generated page, including the generated contents, is logged.

10. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein each inquiry at a web site leads to an entry in the log file, in that a server is always informed of an inquiry by means of a CGI image.

11. (amended) The method for analyzing user behavior in computer networks for optimizing the web

presence of claim 1, wherein interpretation errors are corrected with the help of symbol tables.

12. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein

- the automatic debugging of programming errors in the HTML documents and/or
- the automatic adaptation of HTML documents to the equipment-imposed prerequisites of the user and/or
- the automatic adaptation of the contents of the web site to user behavior and/or the requirements of the user

are a component of the optimization.

13. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the optimization is accomplished

- by a comparison with the typical target group behavior and/or
- by methods of customer-related quality management.

14. (amended) The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the results of the analysis are presented according to the specification of individual parameters.

15. A method for optimizing the web presence in computer networks, wherein the user behavior is determined

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09/868110

JC03 Rec'd PCT/PTO 14 JUN 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
Atty's Docket No. 101215-66

APPLICANT : Joachim Schlafke  
FILED : Concurrently Herewith  
FOR : Method for the Analysis of User Behavior in a  
Computer Network in Order to Optimize Web Presence

PRELIMINARY AMENDMENT

Hon. Assistant Commissioner of Patents  
Washington, D.C. 20231

Sir:

Prior to examination, please amend the application as follows:


**IN THE CLAIMS**

Please make claims 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, and 14 solely dependent on claim 1.

**REMARKS**

The above amendments were made to place the application into proper United States Patent Format.

Respectfully Submitted,

  
\_\_\_\_\_  
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Procedure for the professional analysis of visitor behavior in computer  
networks and for the optimization of web sites

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This invention is a procedure for the analysis of visitor behavior in computer networks and for the optimization of web sites, which is used in order to obtain sophisticated data on the visitor behavior in both internet and intranet. The internet presence can thus be used and modified in order to meet the management goals as to production and turnover.

Since the introduction of the internet (world wide web or www) the number of online users has significantly increased. Thus the internet has become an important business platform on an international scale.

Due to the progressive commercialization the internet becomes increasingly multimedia; graphics, videos, music and language complete the pure textual information. The platform which has been used originally for the pure exchange of information is now used in order to spread advertising campaigns. Other media such as mobile phones or TV sets are integrated in this communication process provided by the internet. Thus the internet has become an important communication instrument in the business-to-business (B2B) and business-to-customer (B2C) market. This results in a drastic change in the consumer behavior of private households. In order to meet the customers' requirements it is indispensable to adapt the supply to the modified consumer behavior. Innovative companies in the consumer goods and service industry realize the enormous market potential and invest in these integrative communication platforms.

It is therefore indispensable to obtain detailed information on the user profiles, which are permanently being modified. The chance to obtain accurate user profiles by using a controlling tool is better than ever, however, it involves the risk of misinterpretation of the data. Traditional procedures are based on a quantitative analysis of the user behavior, i.e. on log file analysis reports. Moreover, it has been proved that the precision indicated by these systems is not correct. The proxy cache server procedure, which is used in the internet in order to increase the total performance, is not registered in the log file if the page is loaded via the cache server. Thus the real number of visitors of the site is not registered. Conversely, the visit of robots, i.e. spies of search engines, are registered as visitors of the site in the log file - however, according to the principles of the analysis they are no visitors. If these processes are not taken into consideration, there will be a misinterpretation of the results. The log file is an instrument for the temporal documentation of the web server. It has not been designed for the analysis of the user behavior. Therefore the result of the log file analysis is not wrong - it has rather been misinterpreted.

The aim was to develop a procedure, which eliminates the faults, defects and shortcomings of the traditional procedures and which

- provides correct and faultless data
- allows a differentiation into old and new customers
- allows to cluster customer segments
- supplies valuable information in order to improve the effectiveness and return on investment of web sites

Moreover, it includes additional technical performances such as language, screen resolution, color intensity, etc.

By the historical documentation of the internet presence the user is able to analyze visitor traffic patterns and demographics and to adapt his advertising campaigns and planning accordingly.

This task is solved by the features in the characteristic part of claim 1 in combination with the features mentioned in the generic term. Appropriate building ups of the invention are contained in the subclaims.

The server records visitor traffic patterns and demographics, clears up misinterpretations and compares the data that has thus been received with empirical data. The results are optimized by tracing them back to the server thus obtaining a closed circuit.

The invention is to be explained in greater detail below by means of examples, which are shown at least partly in the Figures. In the drawing,

Figure 1 shows a flow chart of the procedure,

Figure 2 shows a representation of the components participating in the procedure and

Figure 3 shows a graphic representation of the analytical data.

Due to the invention the provider of a server for internet domains (web site) is able to analyze automatically each visit, activity and additional parameters of the visitor (user) and to evaluate and compare this information to empirical data. The internet presence is thus automatically being optimized.

Each inquiry of the server is taken down. These inquiries and the responses of the server are recorded in the log file. This record is adapted to the technical structure of the server due to the fact that the server activity is being taken down.

Various traditional "analysis programs" use the log file for evaluating the success of the internet presence. These results are incorrect due to the fact that the pure log file analysis is only based upon the recording of historical data.

In the following, the communication between visitor and server, problems resulting thereof, as well as the solution provided by the invention are described.

### **HITS**

In the initial stages of controlling, the log file only counted the number of lines. Each inquiry of a visitor produces a so-called hit. However, today the count of hits has proved to be inappropriate. A HTML page may contain both text as well as multimedia elements such as pictures, sound or videos. If the page is requested, the corresponding multimedia elements are loaded, too and are being recorded in the log file thus producing a hit. Pages containing many multimedia elements thus produce more hits than pages that only contain text. The count of hits only shows the traffic. The number of hits of a domain is still being counted, however, it is not considered to be too important. In contrast to traditional analysis methods, the count of hits will be more precise using this procedure due to the temporary switching off of the proxy cache server and the calculation of not recorded hits afterwards.

### **log file**

It is indispensable to record requests which are independent of the graphics of a website.

It is thus sensible to count the requests for "frame data files" (HTML documents). The request for an HTML page is counted in page views. In contrast to page views, page impressions only count the number of requests for pages that do contain content. The procedure computes the exact number of page views. Page views are not representative of the total analysis, however, they serve as a basis for the calculation of the price (1000 contacts) of ad banners in the internet. The advertising manager is thus given the impression that the advertisement has been shown more often than it really has been. The new procedure also counts page views thus resulting two problems: on the one hand too many requests are counted, which is corrected by the procedure later on, on the other hand the proxy cache server causes an effect to the contrary : requests for pages are operated by the cache and are not registered in the log file.

An innovative complex procedure makes sure that each requested HTML document is counted. A CGI image of only a few bit requires access to the domain server. The individual pages are loaded by the cache server. Due to this method a good performance is maintained, however, a hit on the domain server is produced. The necessary number of page views for this CGI impulse is calculated subsequently. The requests of search engines are not taken into consideration when analyzing the page views due to the fact that these are no real visitors. As a result the owner of the domain receives a 100 % true statement as to the number of page views. As mentioned above, the traditional statements are not representative, however, they are used for the calculation of ad banners. The new procedure provides complete reporting about any activity.

### **frames**

Page views and page impressions are taken as a basis for the calculation of the price of ad banners (per 1.000 hits), however, these analyses are still not suitable for efficient controlling. Using the frame technology a page can be composed of various HTML pages. Loading the screen page each frame, the corresponding HTML data file and the pictures are recorded in the log file.

The quotient of the number of accesses (hits) and the screen pages (content views) differs according to the frame structure and the graphics of a web site. Therefore the results obtained using this method are not sufficient. Due to the fact that frame technology has become more and more popular, one of the main objectives of this procedure is to locate and analyze the pages containing content.

The aim of each domain is to come up to certain expectations. This is the reason for the different structures of web sites. A web site can be composed of 2 or even 7 frames which can be sensible. Therefore the procedure takes into consideration the individual goals of the owners of the domains. The procedure allows to track down the pages that contain definitions regarding the structure of the web site. These pages contain neither navigation, ad banners nor content. They are only responsible for the technical functionality of the web site. The tracking down of these technical HTML documents reduces the total number of page views by approximately 30 %. The remaining HTML documents are recorded and classified as f.e. "containing content, ad banners or navigation". Due to this classification and in combination with the above-mentioned method of CGI images the exact number of requests for each individual HTML document can be determined. For the first time, the real and absolute number of content views can be determined.

## **CGI**

Another challenge are web sites that are generated dynamically. According to the user's preferences the web site is generated by the server and returned to the user. Therefore the HTML page is not recorded in the log file. In case that the pages are generated dynamically or if frame technology is used the above-mentioned methods are not suitable to provide valuable information for controlling purposes. On the other hand, these pages are particularly interesting for the development of products and financial planning as they provide detailed information on the requests and demands of visitors and customers. Especially in the field of e-commerce, more and more HTML documents are generated dynamically. Therefore, no direct conclusions can be drawn from the log file between the HTML document and the information generated dynamically.

The new procedure allows to create a separate parallel file apart from the log file in which the requested parameters of the HTML document are recorded. It is thus possible to record both the frame HTML document and the content. The unit "content view" thus provides correct and precise data from the quantitative and qualitative point of view.

## ***Proxy cache servers***

Cache servers are used in order to store web sites temporarily. If a user who is connected to a proxy server requests a web site, the server checks if the web site is already available locally. If the web site is not available access is made to the server of the provider of the site and the procedure is being recorded in the log file.





### *local cache*

A similar effect is caused by the local cache of the user's computer. All pages that have recently been transmitted are stored in the cache of the user's computer. The building up of the site is thus accelerated and supported by all common types of browsers. This also reduces the number of visitors.

#### Example :

The user requests page 1 and decides to visit another web site due to a cross-reference. After a short period of time he returns to page 1. This page is restored from the local cache. Due to the fact that page 2 has been requested from the server the complete period of time is erroneously assigned to this page. The local cache problem in combination with the proxy cache server problem can therefore cause a misinterpretation. In order to obtain valuable information it is indispensable that the access to the site is recorded by the server. It has to be avoided that the local browser cache provides the user with the requested data without being recorded. Due to the current browser technology, the user can adjust the cache according to his requirements. There is a multitude of variations.

In order to solve the problem an instruction generated by CGI of 50 kB forces the transmission of a 1 pixel graphic from the domain server even if the site is already available in the local cache of the user. This procedure is used in order to solve the proxy cache problem and the local cache problem.

### *dynamic IP*

Another challenge are dynamic IPs. Many internet service providers allocate so-called dynamic IPs. The internet works on a client-server principle. The client requests information from the server. The server processes the request and returns the result to the IP requesting the information. The IP address is therefore indispensable to assign the message. The IP is standardized www.musterfirma.de or 195.128.102.64.

Due to the fact that there are more users than IP addresses, several users have to share an IP address. Service providers in particular work according to this principle. There are two types of dynamic IPs :

type 1: When entering the internet the user receives a dynamic IP address which he keeps during the entire online session

type 2: The user receives a new IP address for each element he requests f.e. picture, text. The IP is being released after the element has been supplied

Without using any additional procedures it is impossible to determine the number of visitors. On the occasion of the last internet conference it was decided to extend the format by 1\*3 respectively 2\*3 figures. It will take about two years until this will be put into practice on an international scale.

Misinterpretations of dynamic IP addresses can only be eliminated to a certain extent. The problem can be solved by identifying the user irrespectively of his IP. If the user is identified he can be counted as a single visitor even if he has different IPs within a session.

If the user does not want to identify himself, there is the possibility to determine whether the different IPs can be assigned to one visitor by theory of probabilities. There will be a visitor demographics report and a diagram indicating the maximum number of visitors, the minimum number of visitors and the calculated number of visitors.

The advantages of the procedure are based upon the fact that the data is filtered, classified into secure and insecure data and then presented. The exactitude of the reports amounts to 98 %.

The results are so precise and accurate that standard data for planning purposes can be calculated. A 2 % tolerance is acceptable and not relevant for the strategic development. The solution is based upon two different visitor traffic patterns :

case 1 : the user identifies himself  
(alternatively with a nickname)

case 2 : the user does not want to be identified

Case 1 : In this case the user has activated the cookies in his browser. A variable is registered in the cookie. If the user now visits the home page he can be identified due to the registration in his cookie. If he visits the domain once again, he is recorded even if he has a new IP address.

On condition that 100 % of the users activate their cookies, statements as below mentioned can be made :

"In the month of September 1999, there were 650 visits to your web site. These 650 visits were produced by 120 different visitors. In the last month you gained 40 new visitors.

Experience has, however, shown that only 50 % of the users activate their cookies. This means that there is a remaining quantity of 50 % that can not easily be identified. One possibility to identify the visitor is to check which pages he has visited, i.e. to check his click stream.

Additional information which is not recorded in the usual log file are useful for this purpose. Another possibility to assign different IPs to a visitor is "VIA". "VIA" shows the complete chain of proxy connections.

Based upon the chain and the logical context in the click stream of the log file extremely precise and accurate data will be obtained according to the theory of probabilities. The accuracy of this part of the procedure amounts to 98 % and has therefore to be considered as very secure.

### **Router**

Many companies are using firewalls for security reasons. Firewalls function as "eye of a needle" - any information has to pass this "eye of the needle". It can thus much easier be controlled than many intersections. The firewall converts any IP used in the company into a single external IP address. In case that the company does not use a proxy cache server, only the IP of the firewall is recorded in the log file.

This means that different users in the company share the same IP address. Without using any additional procedures a differentiation would be impossible.

example     3 users within one company visit an internet domain at the same time. As they share the same IP address it seems that one person moves very quickly from chapter to chapter.

If the company uses a proxy cache system, which is recommendable, the situation is comparable to that of internet service providers.

Using methods comparable to those when identifying users with dynamic IPs, a 98 % true statement can be made as to the quantity of visitors.

The identification problem caused by routers and firewalls can be solved by checking the click stream and the proxy connections. However, the precision is slightly reduced - it amounts to some 92 %.

### ***Robots***

Search engines visit web sites in regular intervals looking for innovations. These robots are software spies searching the internet for innovations. These innovations are then being written into the data bank of the search engine provider.

The visits are recorded in the log file of the server. They would usually be misinterpreted as visits. However, they are filtered by the procedure in order to obtain precise results.

There is a separate analysis of these visits in order to obtain valuable information on the search engines.

Most search engines use the file "robot.txt". A user would never access this file in the directory. The visit will therefore be filtered and deducted.

***The problems caused by search engines and links with regard to web sites featuring frames***

If a keyword is entered in a search engine and the search is successful, the results will be listed.

If the user clicks on the indicated URL, he will often find the content page without the corresponding frame structure. This effect or mistake is often reinforced by modern search engines.

If an URL is registered at a search engine, the robots will visit this URL within the next few days. Various parameters in the meta tag allow respectively prevent that certain sub-directories are being searched. If the search of sub-directories is allowed, it has to be made sure that the complete frame structure is built up if the user accesses the site. This is the only way to present the complete internet domain to the user. However, this programming is often neglected.

Extensive tests have revealed that 40 % of the results found by search engines lead to a sub-chapter of the home page. This large number of cross-links has correctly to be dealt with. It is indispensable to check the programming of home pages as these sites are indicated umpteen times by search engines. The aim is to build up the complete frame structure when calling the content page and to lead the user to this page. Experience has shown that there are serious mistakes in the source code of a large number of domains, or that the meta tags have been badly generated or not been generated at all. Another mistake might be that the site is built up badly if called from subordinated content and not from the home page.

In this case the navigation is no longer indicated. This problem is eliminated by the procedure by automatically respectively semi-automatically optimizing and correcting the code.

The above-mentioned measure is of great importance for the total procedure. On the one hand it is important for quality assurance, on the other hand the data of the meta tag and thus information for the search engine is available in a data base. For the first time it is thus possible to make a set/actual comparison between the most popular key words, the search engines and the information available on the web site. The results of this comparison facilitate the optimization of the meta tag for customer-oriented search results and thus the success of the domain.

### ***Interpretation***

If the user does not identify himself, the only possibility to obtain details on the user behavior is the log file. However, the log file is responsible for recording server activities and has not been conceived for further interpretations. Some suppliers of software pass this data on to analysis tools without adapting them to the requirements.

Information on the user behavior and the technical performance that is not available is estimated. The above-mentioned problems remain unsolved. The resulting data is neither acceptable for controlling nor for planning purposes. On the contrary : False data is taken as a basis thus causing severe damages. The aim is to provide data that is accurate, precise and meaningful for planning purposes. The data that has been estimated has to be eliminated in order to obtain a perfect analysis.

Example : Some analysis programs say that 99 % of the visitors use cookies. This statement is based on the percentage of cookie-able browsers. In reality 50 - 60 % of the users have switched off "accept cookies" so that the statement 99 % of the visitors use cookies is false.

These statements can cause dramatically wrong decisions in the field of e-commerce. A company that builds up its shop system on the basis of cookies reduces its customers by 50 - 60 % due to these wrong statements. This may cause a significant drop in turnover. It is therefore indispensable to programme the shop system again using Java, CGI etc.

Insecure data respectively empirical data has to be examined as to probability and accuracy and to be shown in tolerance ranges. These problems are solved by the modules of the procedure. The procedure makes a distinction between statements that are 100% true and inaccurate data.



The insecure data is examined according to statistical methods as to its probability indicating the range of tolerances.

The user can choose from three forms of representation :

1. representation of secure data
2. representation of data in a range of tolerances
3. mixed and weighted representation of both in a range of tolerances

It can thus be made sure that data is not misinterpreted and wrong decisions can be avoided to a large extent.

#### **Format**

At present more than 30 different log file formats are being used. Depending on the operating system, the server architecture and the provider not only 30 different basis formats are being used but also the most different combinations thereof. Many providers delete or compress historical data and file them in subdirectories. The administration of the log files is of great importance and very much dependent on the administrator. The multitude of basis log file formats, different combinations and the different forms of administration of historical data by providers make a complete and comparable measuring of the performance of internet activities almost impossible. The format problem can only be solved if the data is recorded in a proper and independent data base. It has to be taken into consideration that the historical data is usually deleted by the provider at the end of the month. A long-term planning and long-term analysis periods can therefore hardly be put into practice. The procedure supports the different formats. When starting to use the procedure a log file is downloaded and analyzed. The results are then compared to the requirements of the controller.

Additional information such as screen resolution, cookies activated/not activated and the determination old/new customer as well as the solution of the proxy cache problem is stored in an extension of the log file. The most important problem i.e. the elimination of different handling methods of log files by providers is solved by automatically downloading the log file. The correct data is stored in a separate data base on the controller's computer. Any additional graphs are generated from this data base. It is thus possible to choose different intervals for the analysis respectively compare different time intervals to each other.

These are the advantages of the procedure :

- the data base is independent of the log file
- the data base can be combined with other data bases (set-actual comparison)
- individual additional information can be stored
- the procedure is independent of the handling of the provider
- interfaces to other applications such as inventory management systems are available
- the analysis intervals can be freely chosen
- the procedure provides a basis for extensions (mail flow, comm flow etc)

### **Representation**

In the log file the data is recorded in chronological order. This data has to be filtered, graded and interpreted in order to be in a position to draw conclusions from the technical structure of the directory, which can be seen in the log file, to the presentation structure.

The data, also the data responsible for the navigation, is represented in unstructured form. Another challenge is to relate the file name to the content.

As a consequence only the person who has developed the web site is able to interpret the analysis. However, it requires a lot of time and effort. The sales and marketing department are not able to make any strategic decisions as to the future of the domain without involving the development department. The aim is an accurate and precise representation of the data that is easy-to-understand. The basis is a clear structure of the content that is independent of the technical structure.

The text as a carrier of information should complete the graphics. A requirement for an easy-to-understand representation is the exact depiction of the structure of the web site, i.e. the structure has to correspond to what is shown on the monitor. It is therefore indispensable to provide a "translation" between the technical and graphical structure. Thus even laymen are able to understand the language.

First of all the complete internet structure is downloaded offline. The procedure now filters all pictures as they are not relevant to the user behavior. HTML pages, which are the framework for the content, are not relevant either. The remaining files are responsible for navigation, content, ad banners, execution and download.

The controller now assigns the files to the categories navigation, content and ad banners. Then the content pages are classified into chapters and subchapters. This information is stored in the data base which is the basis for the analysis.

Then the individual information requirements of the controller are determined. This data is also stored in the data base. The procedure includes the classical log file analysis for the documentation of chronological sequences of the server such as the documentation of hits and errors of HTML pages, the representation of page access statistics in the form of pie charts or bar charts and the documentation of the visitor's browser type.

The analysis system includes the program-technical optimization of the web presence, the representation of error-corrected information on the user behavior, such as content views, number of downloads, page views, advertising performance according to the IVW method, the representation of the exact temporal user behavior, information on the user such as on his operating system, browser, colour intensity, screen resolution, cookie activation, JAVA capability, VB capability, representation of the traceability of the user, search engines and keywords, direct access or access via subdomains, analysis of the typical paths of the users, entry site and exit site, residence time, old/new customer, and alert system. Another advantage is that the procedure provides a tool for the analysis of arbitrary periods of time indicating the relative and absolute success. The access to an external data base, in which the user behavior is recorded, allows trend analyses of future developments and an evaluation of the user acceptance.

Another part of the procedure is a tool for the optimization of web sites which automatically causes a code optimization and a frame correction as well as a keyword and meta tag optimization. Moreover, there is a tool for the actualization of search engine entries. Another element provides a web-based training, the analysis of the measurement of the learning success and the evaluation of the efficiency of the training program.

A training program for effective web controlling considering both legal aspects and technical requirements provides the basics as well as standard methods and a strategic controlling system for the optimization of the interactive chain of communication. The procedure is completed by the typical functionalities of e-commerce (PHP4 programming, CGI programming).

Based on the data analysis, control functions and alert systems are provided which are most important for the strategic development and optimization of the internet domain as to its customization. Thus a link between analysis and optimization is created in order to achieve a continuous improvement process.

Other functionalities are f.e. the verification of the efficiency of marketing campaigns, the verification of response activities to requests by means of the internet domain and the evaluation of communicative activities outside the web.

The procedure can be described as follows : Based on the presentation of the web site the user's activities are recorded and analyzed - corrected from recording and interpretation errors. The information is then compared to data provided in a separate data base and the web site is optimized in order to meet the requirements according to the control functions.

Each request of a user to a server is recorded. These requests and the server's responses are chronologically recorded in the log file. This recording is adjusted to the technical structure of the server, as the server activity is recorded. Various programs use the log file as a basis for measuring the success of the internet. It has already been explained why these results are not true. The log file analysis only records and represents historical data. Future trends and developments can not be calculated due to the fact that the input is already faulty and errored.

The below-mentioned elements are represented in the classical log file:

<b>hits</b>	representation of any access including the loading of pictures and the build-up of frame-oriented pages
<b>page views</b>	representation of HTML pages - the loading of pictures is not counted. This value is taken as a basis for the assessment of the performance of advertisements
<b>errors</b>	errors if pages are requested that are not available on the server respectively that can not be found
<b>transferred bytes</b>	data quantity transferred by the server
<b>daily performance</b>	chronological representation of the requests for information giving the time, when the information has been requested
<b>weekly performance</b>	chronological representation of the requests for information in a daily table
<b>monthly performance</b>	chronological representation of the requests for information in a weekly table
<b>general temporal behavior</b>	residence time on a site, intensity check, check of the communication strength of the site
<b>operating system</b>	numeric recording indicating the operating system
<b>browser</b>	numeric recording indicating the browser the user is working with



- additional administrative information for the verification of the communication. Has each mail been answered, have the goals been achieved, which influence do online and offline advertisements have on the accesses to the site ?

The procedure provides valuable additional information for the controller. Compared to traditional products, the R.T.F.I. procedure stands out by the following additional functionalities :

<b>content</b>	number of accesses to content-oriented pages, i.e.
<b>views</b>	pages with relevant content which are not used for navigation. Analysis of ad banners and calculation of ad campaigns. The traditional cost calculation is based on page views, which is not correct !
<b>page statistics</b>	which page is viewed most frequently? How much traffic is there in the content area ? What is the structure of the page and how long is the average visit ?
<b>downloads</b>	which and how often have certain files been downloaded ?
<b>request for information</b>	how often has the page been visited and how many visitors requested additional information ?
<b>update</b>	when has a certain page been updated and what has been modified respectively updated ?
<b>colour intensity</b>	which colour intensity has been adjusted ?
<b>screen resolution</b>	which screen resolution has been adjusted ?



**processor**            what processor type is being used ?

**cookies**            has the user really activated the cookies or does he use a cookie-capable browser ?

**Java**                which Java version can be executed by the user's browser ?

**VB**                  is the performance sufficient to execute Visual Basic ?

**links**                how are the links being used ? The measurement is effected bidirectionally, i.e. incoming and outgoing links are measured and compared

**direct access**        how many users access the domain directly ? what is the percentage compared to other access methods ?

**subdomain**            how many visitors access the domain via a subdomain?

**new / old customer**    in which time intervals does the visitor access the domain, has he already accessed it before ? What is his profile, what are his requests for information ?

**residence time**        how much time does the visitor spend on a specific page, how much time does he spend in total ?

**number of visits**      how many visitors accessed the domain ? what is the number of visits ?

**actions**              the evaluation of actions is an important part of the procedure. Any action which is due to cause an improvement process is recorded and its success is verified

**mail listings**        each incoming mail is recorded

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**alert system**      this module defines the intervention limits. It can thus be avoided that sites are neglected in the evaluation process

**target setting**    the target set is compared to the goal achieved and  
**control**            corrected from the usual increase rates

**e-commerce**        what is the conversion rate from visitor to shopper and shopper to buyer? This rate is decisive for the planning of future optimizing measures

**peak analysis**     the peak analysis represents all processes outside the trend. By examining irregular swings conclusions as to the effectiveness of advertisements outside the web can be drawn

This detailed documentation of historical data, which is of course corrected from interpretation errors, is still not sufficient for target-oriented planning. It is completed by comparative analysis which distinguishes between relative and absolute success.

The periods of time which are to be compared to each other can be chosen. Actualizations or upgrades will be corrected from errors.

**comparison of**      the data is represented in time intervals. The  
**arbitrary time**    results show the success of various measures. The  
**intervals**        results are error-free and corrected from possible misinterpretations

**compensation**      each internet domain is subject to a regular  
**of increase**        increase rate. This is due to the increasing  
**rate**                number of old customers and to the increasing number of users. This regular increase, which does not necessarily reflect the increasing success, is determined and compensated. Thus the exact success is determined corrected from possible misinterpretations.

### **analysis of the user's requests for information**

By means of comparative analysis changes in the user's requests for information can be determined. Thus the content can be adapted to the user profile and customer satisfaction can be reached. This is very important in order to meet the requirements of old customers.

### **analysis of the relative balance**

After starting an internet domain it becomes clear that the user does not require the complete range of information. The average duration of an initial visit amounts to 4 minutes. It is therefore important to determine user profiles in order to achieve a balance of the domain. The aim is a symmetrical distribution of visits to content pages.

### **analysis of modifications of computer performances**

Do you want to know if your customer has activated the cookies? What is his screen resolution ? By comparative analysis you will be able to see modifications of the performance at first sight. You will be able to react immediately to any modifications.

### **search engines**

The entry in search engines is often the only possibility to obtain information. It is not sufficient to publish advertisements indicating the www.address or to mention this address on your business card. An entry among the first ones is of great importance. Therefore the success of search engines and the keywords have to be analyzed and modifications have to be stored.

### **links**

How many new customers come via links ? The path analysis lets you retrace visitor behavior.

#### **old / new customer**

Changes in the proportion of old / new customers are very interesting. The aim is a balanced proportion of old and new customers. It reflects the confidence level of customers.

#### **residence time**

How much time does the user spend on a certain page ? Are there any changes in the field of old customers ? Modifications of the user paths have to be taken into consideration in order to meet customers' requirements.

#### **increase rates in the field of e-commerce**

The conversion rate from visitor to shopper and shopper to buyer is important in order to evaluate the performance of marketing campaigns.

#### **comparative peak analysis**

This report reveals changes in the regular access behaviour due to advertisements or other marketing campaigns. F.e. : A series of advertisements published fortnightly in the same newspaper is examined. After a certain period of time the peaks start to decrease. As a consequence the marketing campaign can be stopped or another campaign can be launched.

The procedure provides correct and error-free data which is used for a comparative analysis. Then the trend is calculated according to DIN ISO standards. These statistical methods for quality assurance have been developed by the DGQ Germany and TÜV cert Germany.

Valuable information on the following topics is provided :

- analysis of page views
- chronological analysis of the user behavior
- analysis of the computer performance
- the influence of search engines and links on the success of a domain

- Will there be a change in the proportion of old/new customers and what are the effects ?

- Will there be a change in the proportion of requests for information / orders in the field of e-commerce ?

The web master needs a reference point in order to define his own position. He needs to know f.e. "is 36:1 (request for information : order) a positive or negative value ? This calibration is effected by means of an external data base.

The know how of many domains is compressed in an external data base. The data is corrected from any distinguishing company features. The data is put at the users' disposal online. Valuable information on trends in the internet, experiences in the field of e-commerce, typical user profiles as well as information on the visitor behavior will be stored in this data base. Thus various possibilities for optimizing the internet domain result.

There are various tools for the optimization of the domain which can be assigned to three main categories :

Category 1 includes statistical modules. These modules optimize the code of the domain. On one hand the modules are integrated in the analysis; on the other hand possible errors are corrected and compensated for. The procedure provides a "translator" which transfers the technical data into a clear form of representation that corresponds to the content. In this section parameters, goals and limits are defined and the procedure is initialized. The statistical modules included in category 1 are :

- code optimization
- frame correction
- proxy optimization
- structure converter
- general correction modules
- parameter module

Category 2 includes dynamic modules which supply information when operating the internet domain. Among these modules are statistical modules and a so-called error messenger. If an error occurs on the server, the error messenger sends an e-mail to the web master indicating the nature of the error. Moreover, the user receives a message that the error will be corrected a.s.a.p.

Category 3 includes dynamic administrative modules. The search term optimizer analyzes the terms which are frequently being searched and generates a list of suggestions. This list of suggestions is improved by the web master and the terms are programmed in the module "meta optimization". The result is a meta tag which meets the requirements of search engines.

The modifications are stored in the entry module of the search engine. The module contacts the search engine automatically and sees to it that the search robot visits the actualized domain. It is thus possible to automate the task to a certain extent, to improve the ranking significantly and to permanently maintain one of the top positions. Other modules generate lists of suggestions for all actions which have to be operated offline, f.e. lists of suggestions for advertisements. The closed control circuit consists of measurement, comparison, trend calculation, optimization, transfer and repeated measurement of success. Thus a continuous improvement process can be achieved as required by DIN ISO 9000.

Another element of the procedure is a training program for effective web controlling and a configuration tool. This multi-media tool provides the know how which is necessary for the gradual build-up and marketing of content in the internet. It provides valuable information on the following questions :

What can be analyzed ?

How secure are the statements and the data ?

Which data protection laws have to be observed ?

What has to be taken into consideration in particular ?

What is the optimum structure for efficient web controlling ?  
How can a continuous improvement process be achieved ?

The "configuration tool" contains concrete questions as to the information desire of the web master. In this section the form of representation of the results is generated. The structure of the content is copied and the procedure is presented as a basis for effective web controlling.

The tool modifies and optimizes the source code of the domain. The structure is modified and certain features are added. These modifications are stored so that the original status can be restored at any time. The central data pool is the heart of the procedure.

The central data pool contains both the old structure of the data and the modified structure. The parameters and the historical modifications are stored. It is thus possible to integrate developments in the comparative analysis. Thus misinterpretations can be avoided.

In addition to the classical log file a second log file is generated. This log file is stored parallel to the external log file. The data can now be processed independent of the provider; by automatically downloading the log files, the complete user data can be recorded.

The complete results of the analyses are stored and represented according to the web master's specifications. These results can be integrated into planning tools which are currently being used by means of a universal interface.

This open platform, provided by the procedure, allows to create further tools. These modules are produced according to the customer's requirements, f.e. modules used for mail controlling, communication mix controlling or administration controlling.

The substantial advances in modern communication engineering such as ADSL, HDSL and power line communication offer a wide range of multi-media facilities. The content is increasingly adapted to the user's requirements. Dialog systems foster the continuous communication with customers. The success respectively the return on investment (ROI) of a web site is decisive for the strategic development of the content in order to meet the customers' requirements.

The aim of the procedure - in the sense of a high-quality reporting system - is to increase respectively improve the dialog with the customer in order to optimize both the product and the service including logistics and cost management.

Simple web site statistics can be generated by standard analyses. These analyses are, however, non-specific as they do not identify the user, the user path, the breaks, the residence time etc. Custom-designed content and instruments can, however, only be provided after a personified analysis of the customer's requirements. The analysis according to typical visitor behavior structures is therefore indispensable.

Standard analyses are not sufficient for creating new, innovative dialog concepts. Only a combination of various methods guarantees an ideal dialog concept taking into consideration user-specific factors.

These are the benefits for the user :

- Flexibility and optimization of the custom-designed communication mix
- documentation of the web presence
- success measurement and documentation of strengths and potential challenges of the communication
- establishment of integrated communication concepts by print media, TV and radio



- direct mailing and electronic media
- immediate determination of demand-driven trends and direct adaptation of the communication mix
- cut in printing, logistics and media expenses
- optimized reaction to the requirements of the target group

The functionalities provided by the procedure can successfully be used by private, local, regional, national and multinational suppliers.

Private persons put personal information at the public's disposal on a virtual web space. Like the private provider, the local provider does often not dispose of a server of his own. Thus his requirements are comparable to those of private providers. The use of some of the above-mentioned modules will be sufficient to meet their requirements.

Due to the fact that the regional provider disposes of various branches, he offers a wide range of information. It can be assumed that this customer disposes of mature technology in order to obtain verified data on the user behavior. He is thus a potential user of the procedure to its full extent.

National / multinational companies usually dispose of a server of their own and are thus in a position to use the whole spectrum of the internet. They are potential customers of the entire procedure including the training tool. Depending on the size of the company, individual interfaces to commercial inventory management systems and planning tools can be programmed.

## The business concept

"continuous optimization of the net product potentials of interactive communication and distribution instruments" such as internet, intranet and extranet

1. continuous development and customer orientation by a strategic service concept

2. advantages of the service concept for innovative companies

### 1. Continuous development and customer orientation by a strategic service concept

The service concept starts with the actual state analysis of the customer's web site. A weak-point analysis is effected which shows improvement potentials.

Due to the fact that not each feature of the controlling tool can be automated, some tools are adapted manually according to the customer's requirements. The implementation of R.T.F.I. thus requires human resources.

There are various advantages for the customer : by outsourcing software specialists, high-quality support is guaranteed and a cut in personnel costs is effected. Thus specialist know how is available "on demand" and/or the customer can be looked after on the spot by a local specialist, f.e. by a franchisee.

An optimal service concept consists of the following components :

1. actual state analysis
2. workshop in order to determine improvement potentials
3. determination of the set condition
4. definition of goals : short-term, long-term
5. realization by R.T.F.I.
6. control

By the actual state analysis, the actual state of the domain is determined and all relevant data is taken from the log file. Then the potential is determined in cooperation with the customer and the set condition and long-term and short-term goals are defined.

The results are compared to the data of the external data base and to the data of the R.T.F.I. data pool and are finally evaluated. Then the short-term and long-term goals and measures resulting thereof are re-defined in cooperation with the customer.

According to the customer's requirements, the content, the structure and the work flow are optimized and the corporate identity is developed. Thus the circuit is closed which can be repeated in arbitrary intervals of 1 - 3 months.

In addition to the classical R.T.F.I. tool, the following special services are offered :

- optimization of the communication mix by analyzing the effectiveness of advertisements
- realization of sponsorship concepts by analyzing the number of visitors and target groups
- online advertisements including measurement of success and cost / benefit analysis
- support of "star alliances" by programming of interfaces to inventory management systems and realization of logistic concepts
- workflow optimization from order to delivery and invoicing to partner companies

## **2. Advantages of the service concept for innovative companies**

This unique service concept stands out by the following characteristics :

- ideal personnel and cost structure by outsourcing
- innovative, state-of-the-art solutions due to permanently trained specialists
- fast, measurable success by time-optimized concepts
- independent analysis of the user behavior due to quality assurance measures
- unambiguous, decision-supporting presentation of the results
- independent evaluation of the results of the analysis
- investment minimization and investment protection by successive investment activities with parallel measurement of success
- network by cooperation with market leaders and experts in order to solve individual challenges

## Claims

1. A method for analyzing user behavior in computer networks for optimizing the web presence, wherein

- the source language of the domain is optimized after the method is implemented,
- user activities are recorded and logged by at least one server computer,
- the activities recorded are debugged to remove interpretation errors,
- after the debugging, the data is analyzed and compared with data from an empirical database and
- the results of the comparison for optimizing are used in that, by feedback, the server computer is affected actively and, by these means, a closed-loop control circuit is realized.

2. The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the user activities are logged in a log file and/or stored in a second database.

3. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 or 2, wherein

- parameters of the controlling and/or
- data concerning the structure of the HTML documents and/or
- the actual state analysis and/or
- the historical data and/or
- the trend analysis

are stored in the log file and/or the second database.

4. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 to 3, wherein the method makes a universal interface available.

5. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 to 4, wherein the logged user activities are saved over a period of several months

6. The method for analyzing user behavior in computer networks for optimizing the web presence of claim 1, wherein the empirical database contains information

- concerning all HTML documents which, provided with attributes, are listed in symbol tables, and/or
- concerning controlling parameters.

7. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 to 6, wherein the attributes, assigned to the HTML documents, characterize the HTML documents as

- technical documents,
- documents for navigation,
- content-containing documents or
- advertising-containing documents.

8. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 to 7, wherein the interpretation errors, which are caused by constructing the web site and/or by using

- proxy cache reserves and/or
  - local cache memories and/or
  - routers and/or
  - firewalls and/or
  - dynamically issued IP addresses,
- are corrected.

9. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 to 8, wherein each inquiry at a dynamically generated page, including the generated contents, is logged.

10. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 to 9, wherein each inquiry at a web site leads to an entry in the log file, in that a server is always informed of an inquiry by means of a CGI image.

11. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 to 10, wherein interpretation errors are corrected with the help of symbol tables.

12. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 to 11, wherein

- the automatic debugging of programming errors in the HTML documents and/or
- the automatic adaptation of HTML documents to the equipment-imposed prerequisites of the user and/or
- the automatic adaptation of the contents of the web site to user behavior and/or the requirements of the user

are a component of the optimization.

13. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 to 12, wherein the optimization is accomplished

- by a comparison with the typical target group behavior and/or
- by methods of customer-related quality management.

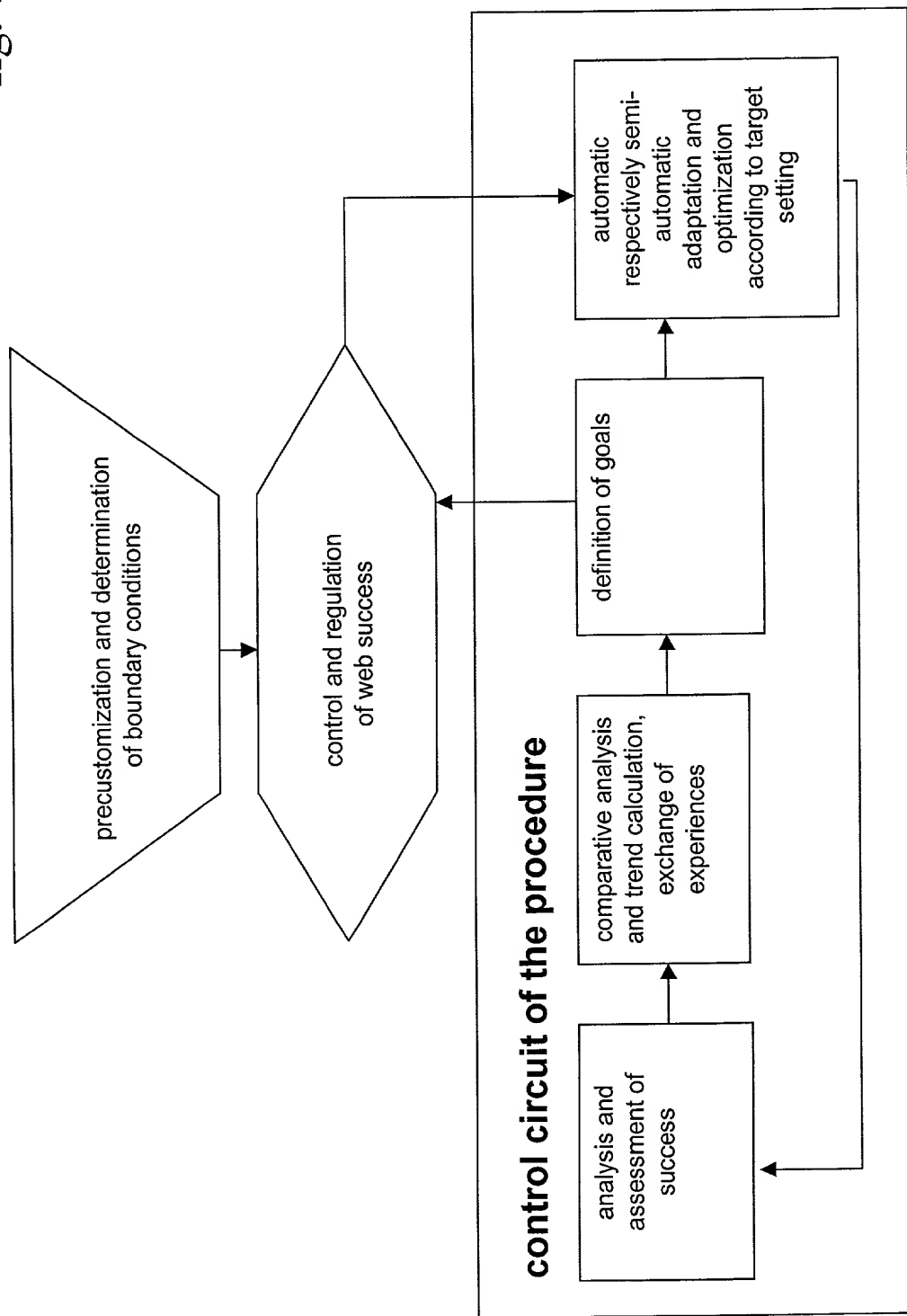
14. The method for analyzing user behavior in computer networks for optimizing the web presence of claims 1 to 13, wherein the results of the analysis are presented according to the specification of individual parameters.

15. A method for optimizing the web presence in computer networks, wherein the user behavior is determined and analyzed, defective factors being eliminated and the web presence being optimized with the objective of increasing the commercial effectiveness of the web presence in such a manner that, from the corrected user activities

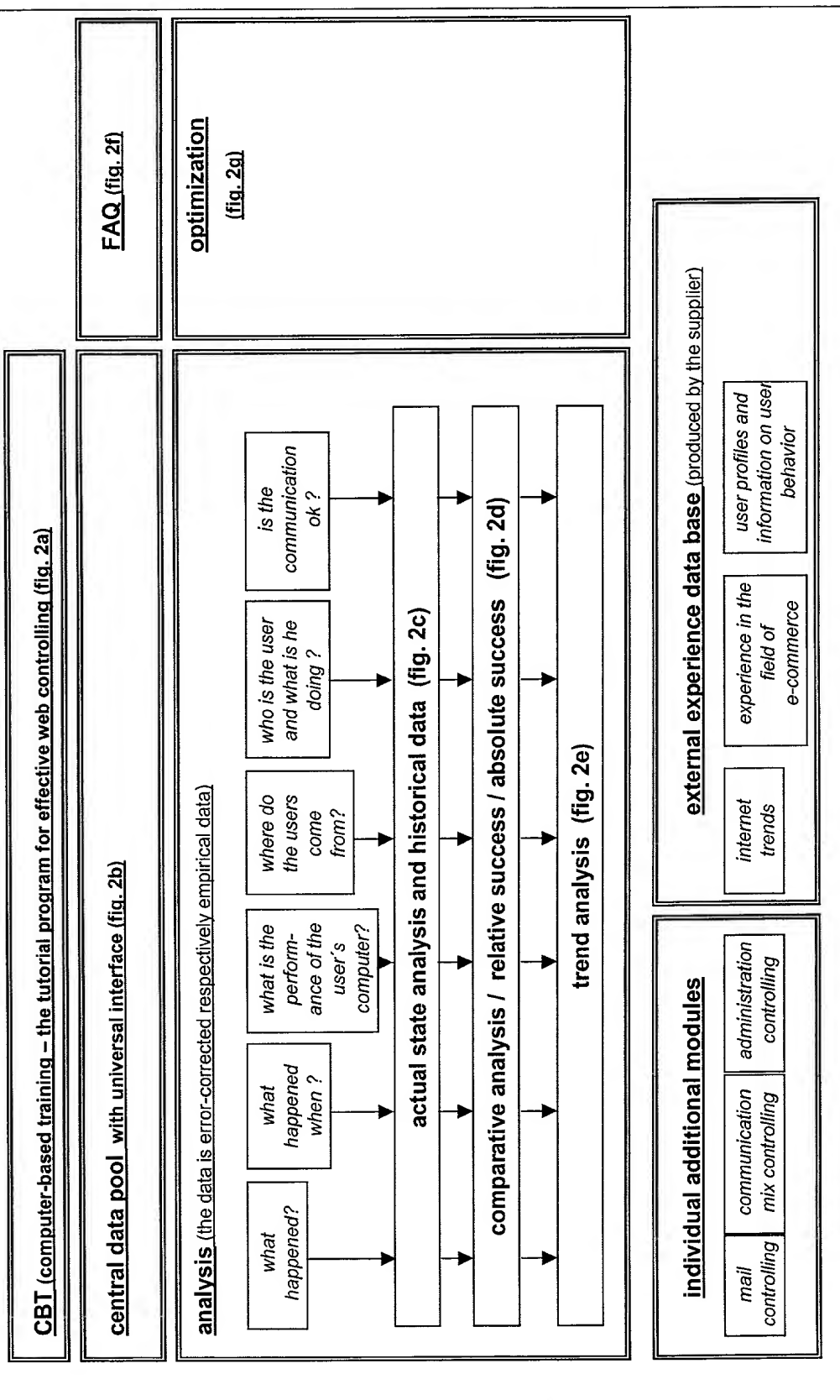
and statements, acquired from an empirical database, a control value for realizing a closed-loop control circuit is formed, which has an effect on the lay-out of the web presence.



fig. 1



# R.T.F.I. overview of the range of performances fig. 2



# R.T.F.I. overview of the range of performances

fig. 2a

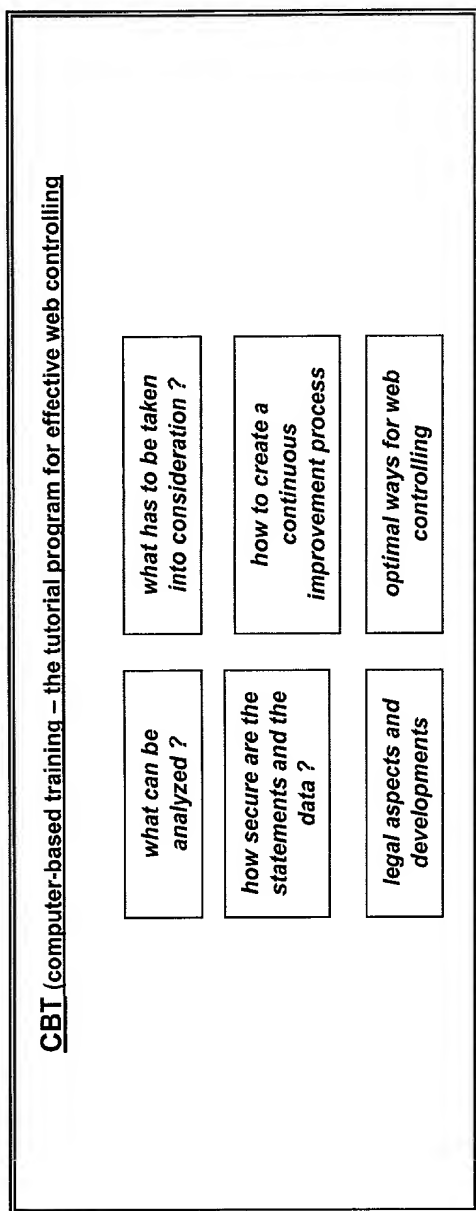
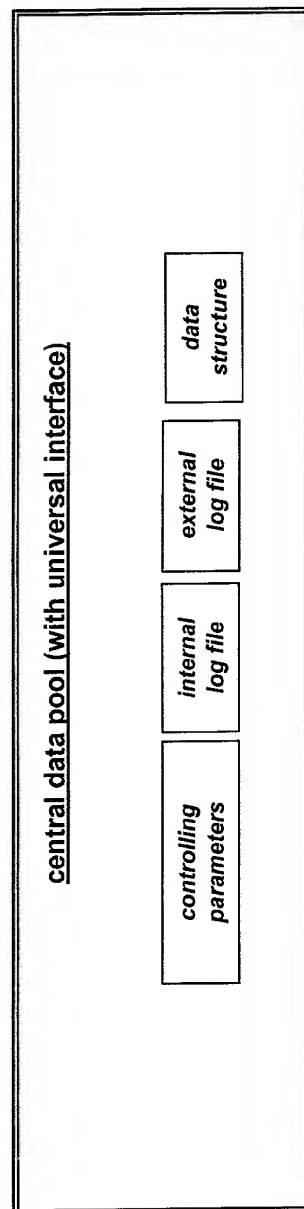
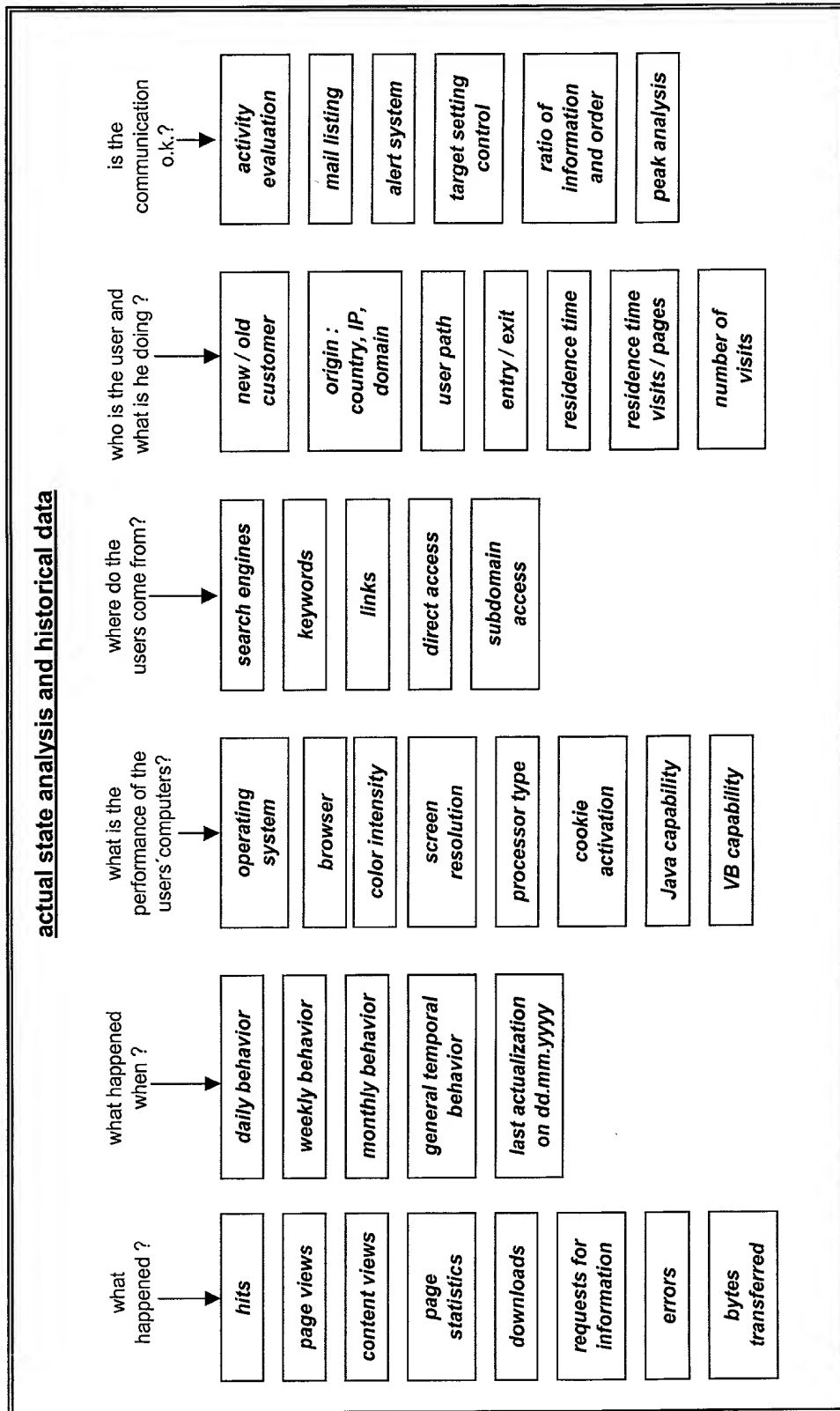


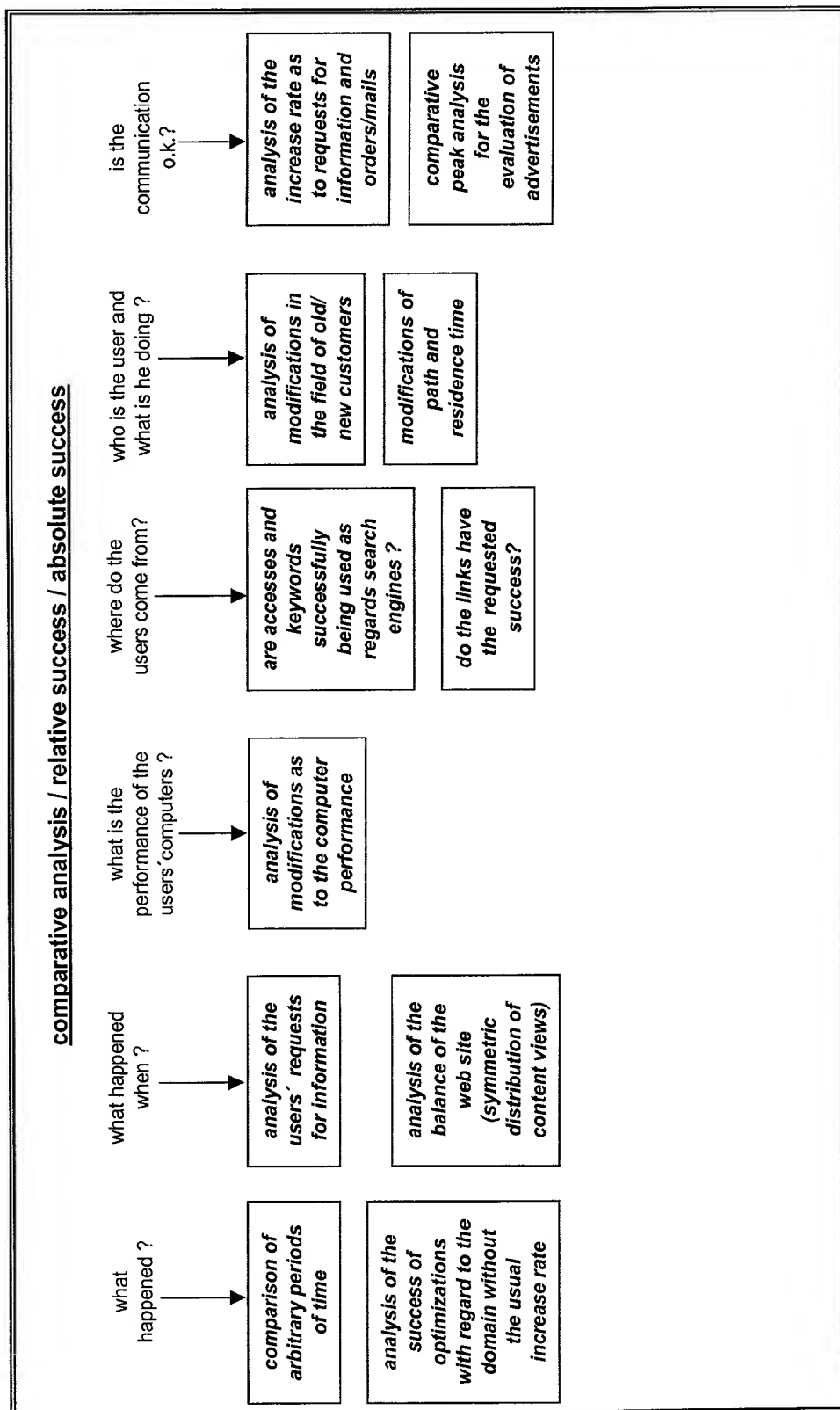
fig. 2b



**R.T.F.I. overview of the range of performances** fig. 2c



**R.T.F.I. overview of the range of performances** fig. 2d



R.T.F.I. overview of the range of performances fig. 2e

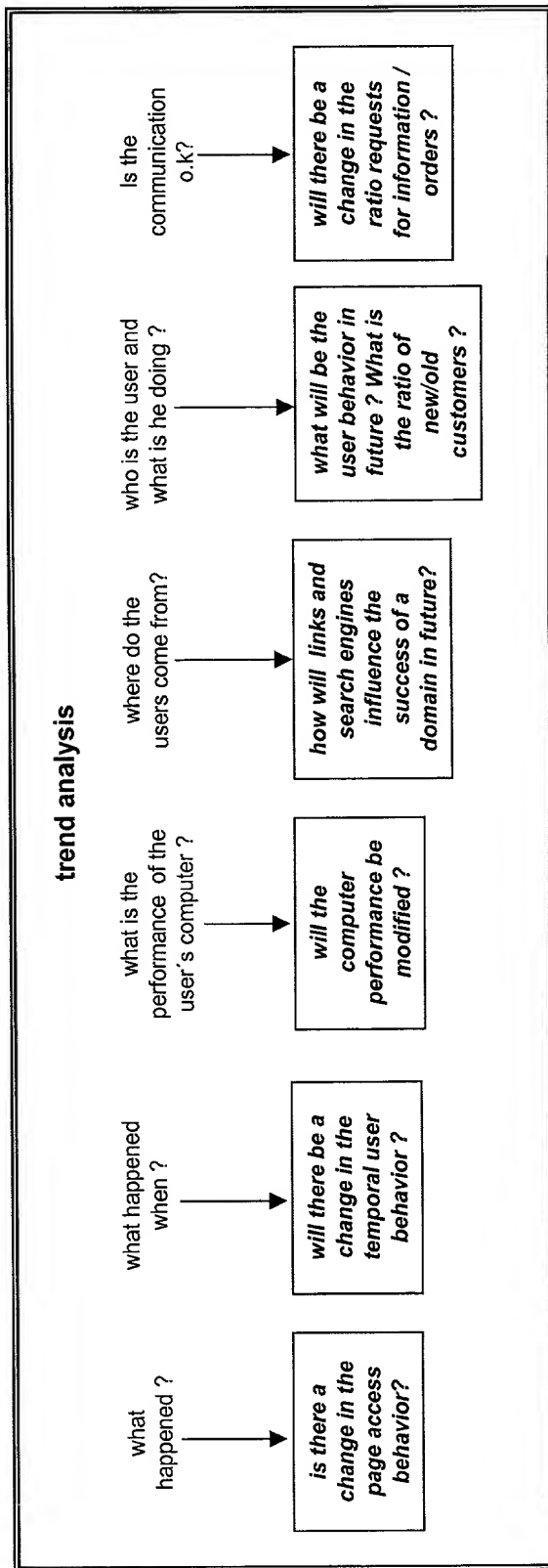
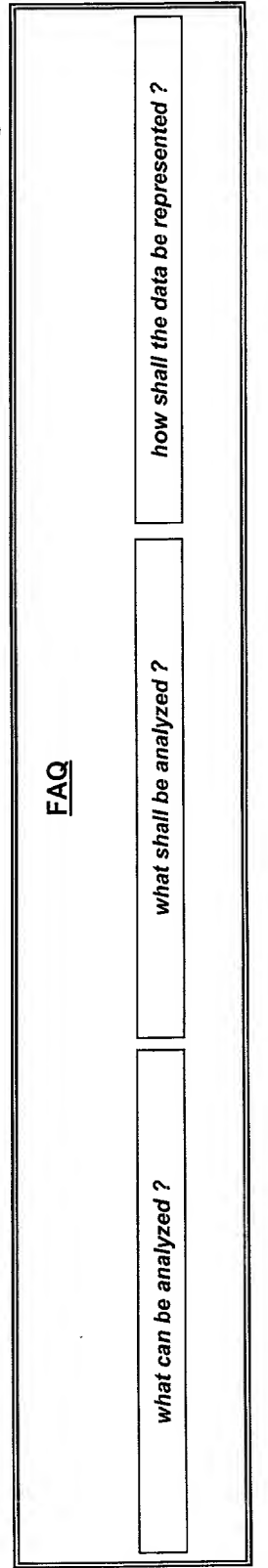
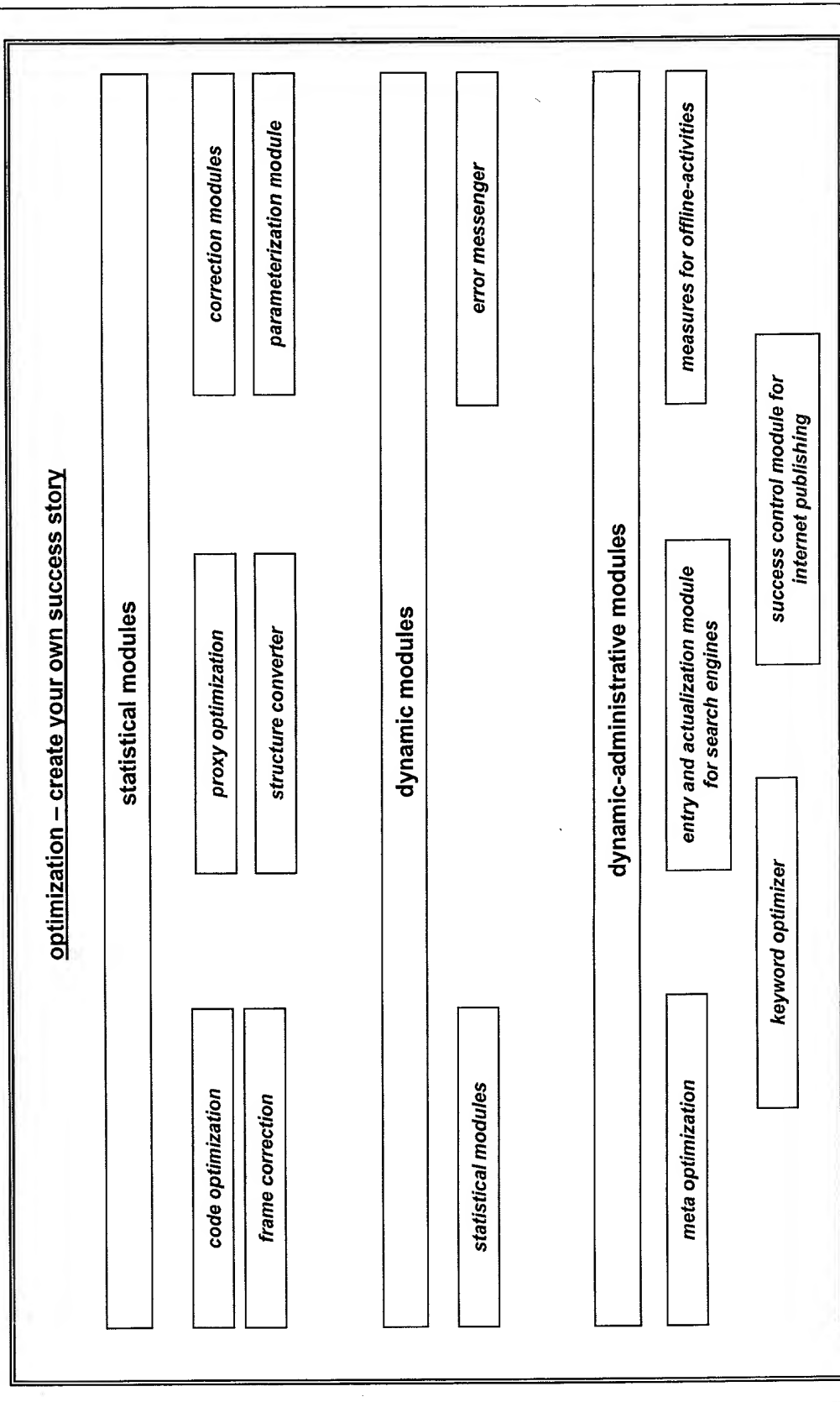


fig. 2f



**R.T.F.I. overview of the range of performances** fig. 2F



09/868110

What Happened

When it Happened

Computer of the User

From Where Comes  
The User

Who is the User

## Section 1

- sub-section 1.1
- sub-section 1.2
- sub-section 1.3
- sub-section 1.4
- sub-section 1.5

- sub-section 1.5.1
- sub-section 1.5.2
- sub-section 1.5.3
- sub-section 1.5.4
- sub-section 1.5.5

- sub-section 1.6
- sub-section 1.7
- sub-section 1.8
- sub-section 1.9
- sub-section 1.10

## Section 2

- sub-section 2.1
- sub-section 2.2
- sub-section 2.3
- sub-section 2.4
- sub-section 2.5

- sub-section 2.5.1
- sub-section 2.5.2
- sub-section 2.5.3
- sub-section 2.5.4
- sub-section 2.5.5

- sub-section 2.6
- sub-section 2.7
- sub-section 2.8
- sub-section 2.9
- sub-section 2.10

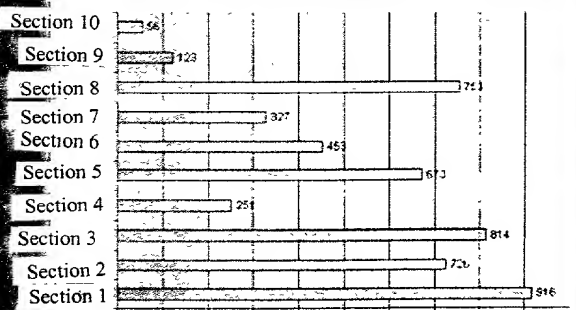
## Section 3

- sub-section 3.1
- sub-section 3.2
- sub-section 3.3
- sub-section 3.4
- sub-section 3.5

- sub-section 3.5.1
- sub-section 3.5.2
- sub-section 3.5.3
- sub-section 3.5.4
- sub-section 3.5.5

- sub-section 3.6
- sub-section 3.7
- sub-section 3.8
- sub-section 3.9
- sub-section 3/10

Accessed in the Section



## Outline of the Domain

From 01.06.1999 to 30.06.1999

Number of Visitors:	1.357
Number of Content Views:	5.092
Number of Page Views:	52.930
Number of Hits:	83.723
Number of Downloads:	37
Number of Requests for Information:	350
Quantity of Transferred Bytes:	47.530.302

Here one Sees  
a the Actual of His  
Domain

OK. What's On!  
To be Able to scroll down  
to the individual sections,  
These must be clicked.

Section 1	916 19%	Section 2	726 14%	Section 3	814 16%	Section 4	251 5%	Section 5	673 13%
Section 6	453 9%	Section 7	327 6%	Section 8	753 15%	Section 9	123 2%	Section 10	56 1%

Outline

Section

Pages

Supposed/Action Comparison

Parameter

End



I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

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	City of Residence	State or Foreign Country	Country of Citizenship
	Post Office Address	City	State & ZIP/Country
204	Family Name	First Given Name	Second Given Name
	City of Residence	State or Foreign Country	Country of Citizenship
	Post Office Address	City	State & ZIP/Country
205	Family Name	First Given Name	Second Given Name
	City of Residence	State or Foreign Country	Country of Citizenship
	Post Office Address	City	State & ZIP/Country

#2

If each inventor understands English, the Declaration and Power of Attorney below is suitable for use when filing a regular patent application and also when entering the national stage, in the case of an International application designating the USA under the PCT.

**NORRIS, McLAUGHLIN & MARCUS, P.A.**

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**COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION**

Attorney Docket No.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below at 201) or an original, first and joint inventor (if plural names are listed below at 201-206) of the subject matter which is claimed and for which a patent is sought on the invention entitled

the specification of which (check one)

☒ X is attached hereto

☐ was filed on October 13, 2001

under Serial Number PCT/BP00/10136 and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56.

I list below any prior foreign application(s) for patent or inventor's certificate in respect of which foreign priority benefits are claimed under 35 USC 119; and any prior foreign application(s) for patent or inventor's certificate in respect of which such foreign priority rights are not claimed and which has a filing date before that of any application in respect of which such foreign priority benefits are claimed:

Application Number	Country	Filing Date (day, month, year)	Priority Claimed under 35 USC 119
199 51 209.4	Germany	October 15, 1999	YES: <input checked="" type="checkbox"/> X NO: <input type="checkbox"/>
			YES: <input type="checkbox"/> NO: <input type="checkbox"/>
			YES: <input type="checkbox"/> NO: <input type="checkbox"/>

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below.

Application No.	Filing Date

206	Family Name	First Given Name	Second Given Name
	City of Residence	State or Foreign Country	Country of Citizenship
	Post Office Address	City	State & ZIP/Country

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor 201

Date

10.11.2001

Signature of Inventor 202

Date

Signature of Inventor 203

Date

Signature of Inventor 204

Date

Signature of Inventor 205

Date

Signature of Inventor 206

Date

09363440-030703